IN THE CLAIMS:

Claim 1 (currently amended): A method of measuring moisture content, comprising the following:

using a microwave cavity resonator that is provided with two ~~holed~~ iris plates which are arranged ~~vertically in the direction of~~ perpendicular to and spaced along a tube axis ~~at mid-points~~ of a wave guide, each iris plate having a circular hole located at a mid-point of said wave guide, a portion between the iris plates forming a resonator portion and the outside of each of the iris plates forming traveling wave portions, and with a slit in which a specimen is disposed being placed in a manner so as to cross the resonator portion;

setting a measuring frequency in a predetermined range between 1 to 25 GHz; and

measuring the moisture content or the moisture percentage of the specimen based upon a difference in resonance peak level between cases when the specimen is not present in the slit and the specimen is present in the slit.

Claim 2 (original): The method of measuring moisture content according to claim 1, wherein the moisture percentage of the specimen is determined based upon a value obtained by dividing the difference in resonance peak levels between the presence and absence of the specimen by a difference in resonance frequency between the presence and absence of the specimen.

Claim 3 (original): The method of measuring moisture content according to claim 1, wherein:

measurements are carried out on a specimen of a film substrate bearing a coat layer on the surface thereof as well as on a specimen of a film substrate without the coat layer; and

the moisture content or the moisture percentage of only the coat layer is determined by subtracting the measured value of the specimen without the coat layer from the measured value of the specimen with the coat layer.

Claim 4 (original): The method of measuring moisture content according to claim 1, wherein:

measurements are carried out on a specimen of a film substrate bearing a plurality of coat layers laminated on the surface thereof as well as on a specimen of a film substrate bearing coat layers except for the outermost coat layer of the coat layers; and

the moisture content or the moisture percentage of only the outermost coat layer is determined by subtracting the measured value of the specimen without the outermost coat layer of the coat layers from the measured value of the specimen with the plurality of coat layers.

Claim 5 (original): The method of measuring moisture content according to any of claims 1 to 4, wherein,

measuring a temperature dependency of the resonance peak level preliminarily,

detecting a temperature of the microwave cavity resonator, a temperature of the surroundings of the slit or a temperature of the specimen when measuring the specimen, and

correcting the measured resonance peak level value based upon the temperature dependency by using the detected temperature.

Claim 6 (currently amended): A moisture content measuring device comprising:

a microwave cavity resonator that is provided with two ~~holed~~ iris plates which are arranged ~~vertically in the direction of~~ perpendicular to and spaced along a tube axis ~~at mid point~~ of a wave guide, each iris plate having a circular hole located at a mid-point of said wave guide, a portion between the iris plates forming a resonator portion and the outside of each of the iris plates forming traveling wave portions, and with a slit in which a specimen is disposed being placed in a manner so as to cross the resonator portion;

a microwave sweep oscillator which is connected to one of the pair of traveling wave portions and oscillates at a frequency in a predetermined range between 1 to 25 GHz;

a microwave intensity receiver that is connected to the other of the pair of traveling wave portions; and

a data processing device which, upon receipt of a signal from the microwave intensity receiver, detects a peak level, and

determines the moisture content or the moisture percentage of a specimen based

upon a difference in resonance peak level between cases when the specimen is not present in the slit and the specimen is present in the slit.

Claim 7 (original): The moisture content measuring device according to claim 6, wherein the microwave cavity resonator has the holes of the iris plates placed on the tube axes, with a diameter thereof being set to 1.0 to 20 mm.

Claim 8 (original): The moisture content measuring device according to claim 6, wherein the resonator portion of the microwave cavity resonator has a dimension that is set to TE_{10n} (n = 1, 2, 3, ...) in a resonance mode, with the slit being placed at a position that forms the maximum value in a electric field vector.

Claim 9 (original): The moisture content measuring device according to any of claims 6 to 8, wherein:

one of the paired traveling wave portions of the microwave cavity resonator is constituted by a wave guide portion adjacent to one of the iris plates and another wave guide portion, connected to this wave guide portion, to which the microwave sweep oscillator is connected, and

the other traveling wave portion is constituted by a wave guide portion adjacent to the other iris plate and another wave guide portion, connected to this wave guide portion, to which the microwave intensity receiver is connected.

Claim 10 (original): The moisture content measuring device according to any of claims 6 to 9, wherein both the wave guide to which the microwave sweep oscillator is connected and the wave guide to which the microwave intensity receiver is connected are prepared as a coaxial wave guide converter with a one-sided flange.

Claim 11 (original): The moisture content measuring device according to any of claims 6 to 10, wherein,

the data processing device further detects a resonance frequency upon receipt of a signal from the microwave intensity receiver and determines the moisture percentage of the specimen based upon a value obtained by dividing the difference in resonance peak level between the presence and absence of the specimen by a difference in resonance frequency between the presence and absence of the specimen.

Claim 12 (original): The moisture content measuring device according to any of claims 6 to 11, further comprising:

a specimen supplying mechanism that continuously supplies a specimen to the slit of the microwave cavity resonator,

wherein the data processing device further comprises a storage unit that stores a resonance peak level value when no specimen is present in the slit or a resonance frequency value in addition to the resonance peak level value, and determines a moisture content or a moisture percentage of the specimen by using a measured value upon

presence of the specimen in the slit and a value upon absence of the specimen in the slit that is stored in the storage unit,

whereby an on-line measuring device that continuously measures the specimen is formed.

Claim 13 (original): The moisture content measuring device according to claim 12, further comprising:

a temperature dependency value storage unit that stores a preliminarily measured temperature dependency of the resonance peak level; and

a temperature sensor which detects a temperature of the microwave cavity resonator, a temperature of the surroundings of the slit and a temperature of the specimen when measuring the specimen,

wherein, the data processing device further comprises a correction means that corrects the resonance peak level measured value based upon the temperature dependency stored in the temperature dependency value storage unit by using the detected temperature from the temperature sensor.

Claim 14 (original): The moisture content measuring device according to claim 12 or claim 13, wherein a guide that has a shape for guiding the specimen to the slit is attached to an end portion of the slit side on the outside face of an E face of the wave guide of the microwave cavity resonator.

Claim 15 (original): The moisture content measuring device according to any of claims 12 to 14, further comprising:

proximity sensors that are placed in the vicinity of the slit at opposing positions with respective gaps to the surface and rear face of the specimen that passes through the slit; and

a fluctuation detecting unit that detects a fluctuation of the specimen passing through the slit based on a detected values of the proximity sensors.

Claim 16 (original): The moisture content measuring device according to claim 15, further comprising:

a save mechanism that keeps away the microwave cavity resonator from the specimen when a fluctuation width detected by the fluctuation detecting unit exceeds a predetermined reference value.

Claim 17 (previously presented): The moisture content measuring device according to claim 6, wherein both the wave guide to which the microwave sweep oscillator is connected and the wave guide to which the microwave intensity receiver is connected are prepared as a coaxial wave guide converter with a one-sided flange.

Claim 18 (previously presented): The moisture content measuring device according to claim 12, further comprising: proximity sensors that are placed in the vicinity of the slit at opposing positions with respective gaps to the surface and rear face of the specimen that passes through the slit; and a fluctuation detecting unit that detects a fluctuation of the specimen passing through the slit based on a detected values of the proximity sensors.